REMARKS

Claims 1 and 3-8 are currently pending in this application, with claims 1 and 3 being in independent form. Claims 1, 3, 4 and 5 are currently amended. Support for these amendments can be found, for example, in the specification as filed. Additionally, Applicant has amended the claims to replace PINO1 with PcINO1 an art accepted equivalent. Proof of this equivalence is found in the following journal article submitted herewith:

- Ghosh Dastidar et al, Plant Physiology, 2006, 140, 1279-1296.

No new matter has been added by these amendments. Removal of the rejections and allowance of claims 1 and 3-8 is respectfully requested.

Claim Objections

The Office Action objects to claims 1, 3, 4 and 5 for the reasons indicated on pages 2-3 of the Office Action. Claims 1, 3, 4 and 5 are currently amended to address these claim objections. Withdrawal of the objection and reconsideration of claims 1, 3, 4 and 5 is respectfully requested.

35 U.S.C. §112

35 U.S.C. §112, second paragraph

Claim 6 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The Office Action states that claim 6 lacks antecedent basis for "the expressed PINO1 proteins". In view of the current amendments to the claims, Applicant believes that claim 6 now complies with 35 U.S.C. §112, second paragraph. Withdrawal of the rejections and reconsideration of the claims is respectfully requested.

35 U.S.C. §103

Claims 1 and 3-8 have been rejected as being obvious over Raychaudhuri et al. in view of Yoshida et al., Temporal and Spatial Patterns of Accumulation of the Transcript of *Myo*-Inositol 1-Phosphate Synthase and Phytin-Containing Particles during Seed Development in Rice", Plant Physiology 119:65-72 (Jan. 1999) (hereinafter "Yoshida").

Claim 1 is directed toward an isolated nucleic acid molecule for a salt-tolerant L-myo-inositol 1-phosphate synthase from *Porteresia coarctata* (PcINO1) comprising the nucleic acid sequence of SEQ ID NO. 1, or a nucleic sequence encoding protein comprising SEQ ID NO. 3. Particularly, claim 1 describes the nucleotide [and the corresponding amino acid sequences] sequences of a salt-tolerant L-*myo*-inositol 1-phosphate synthase coding gene [protein] from the wild halophytic rice *Porteresia coarctata.*

Amended claim 3 is directed toward a process of obtaining cDNA encoding a salt-tolerant L-myo-inositol 1-phosphate synthase including: (i) isolation of a full-length cDNA for the L-myo-inositol 1-phosphate synthase gene from the leaf of *Porteresia coarctata* by reverse transcription followed by polymerase chain reaction; and (ii) sequencing of the isolated L-myo-inositol 1-phosphate synthase gene, wherein the sequenced synthase from *Porteresia coarctata* (PcINO1) is encoded by a nucleotide sequence SEQ ID NO. 1 and has a deduced amino acid sequence SEQ ID NO. 3.

Applicant respectfully traverses this rejection and requests the withdrawal and reconsideration of the claims.

Raychaudhuri is directed toward a study of salinity-induced enhancement of L-myo-inositol 1-phosphate synthase in rice (*Oryza sativa* L) Yoshida et al. is applied for teaching methods of isolating the cDNA encoding the *Oryza sativa* L-myo-inositol 1-phosphate synthase.

Under United States patent practice, the mere fact that references <u>can</u> be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *MPEP 2143.01* Additionally, the "suggested combination of references cannot require a substantial reconstruction and redesign of the elements shown in, [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." *MPEP 2143.01*

When comparing the sequence of RINO1 (*OsINO1)* (Raychaudhuri) with PcINO1 of claims 1 and 3, it is evident that the PcINO1 has a different gene and hence amino acid sequence organization which creates a difference of 37 amino acids between Trp-174 and Ser-210 in the PcINO1 protein.

The 37 amino acid stretch is responsible for conferring salt-tolerance to the PcINO1. Particularly, deletion of the 37 amino acid stretch from PcINO1 protein rendered the protein salt-sensitive *in vitro* [like the OsINO1 protein] despite the fact that the protein retains its catalytic activity. Further, while introgression of the PcINO1 gene confers salt-tolerance to the transgenic tobacco plants, introgression of the deletion mutant of the PcINO1 gene failed to confer salt-tolerance to the same. Also, detailed biochemical and biophysical analysis of the 37 stretch provided molecular insight into the basis of salt-tolerance of PcINO1 as opposed to the salt-sensitive OsINO1 protein. Specifically, hybrid proteins could be generated by replacing the corresponding 37 amino acid stretch of the salt-sensitive OsINO1 or BjINO1 (INO1 from *Brassica juncea*) by the 37 amino acid stretch of PcINO1 rendering the salt sensitive OsINO1 and BjINO1 proteins salt-tolerant. Introgression of the *PcINO1* gene to evolutionary diverse organisms [such as *E.coli, Scizosaccharomyces pombe, Oryza sativa, Nicotiana tabaccum* and *Brassica juncea*] confer salt-tolerance to the transformed/transgenic systems as opposed to the ones introgressing the OsINO1 gene. Such phenotype has been correlated with the nature of the PcINO1 protein carrying the unique 37 amino acid stretch.

The teachings of Raychaudhuri do not provide a method for an isolated nucleic acid molecule for a salt-tolerant L-myo-inositol 1-phosphate synthase from *Porteresia coarctata* (PcINO1) comprising the nucleic acid sequence of SEQ ID NO. 1 or a nucleic sequence encoding protein comprising SEQ ID NO. 3. Specifically, the teachings of Raychaudhuri are directed to enhancing the salinity-induced enhancement of L-myo-inositol 1-phosphate synthase in rice (*Oryza sativa* L). Therefore, to teach or suggest the claimed salt-tolerant L-myo-inositol 1-phosphate synthase from *Porteresia coarctata* (PcINO1) comprising the nucleic acid sequence of SEQ ID NO. 1, or a nucleic sequence encoding protein comprising SEQ ID NO. 3, Raychaudhuri would have to be substantially reconstructed and redesigned and cannot render the claimed invention obvious.

The claimed invention would not be obvious in view of Raychaudhuri and Yoshida, since the nucleic acid and amino acid sequence of the tolerant L-myo-inositol 1-phosphate synthase for *Porteresia coarctate* is different from that of *Oryza sativa*, therefore, Applicant asserts that the claimed invention would not be obvious in view of the teachings of Raychaudhuri and Yoshida.

Claims 4-8 depend directly or indirectly from and further limit claim 3 and are patentable for at least the aforementioned reasons. Removal of the rejection and allowance of claims 1 and 3-8 is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that currently pending claims 1 and 3-8 are in condition for allowance. Removal of the rejections and allowance of claims 1 and 3-8 is respectfully requested. If there are any remaining issues to be resolved, Applicant requests that the Examiner contact the undersigned attorney for a telephone interview.

Respectfully submitted,

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